5. A binding partner for PARP homologs as claimed in claim 1 [any of the preceding claims], selected from

a) antibodies and fragments thereof,

b) protein-like compounds which interact with a part-sequence of the protein, and

c) low molecular weight effectors which modulate the catalytic PARP activity or another biological function of a PARP molecule.

6. A nucleic acid comprising

a) a nucleotide sequence coding for at least one PARP homolog as claimed in claim 1 [any of claims 1 to 4], or the complementary nucleotide sequence thereof;

b) a nucleotide sequence which hybridizes with a sequence as specified in a) under stringent conditions; or

c) nucleotide sequences which are derived from the nucleotide sequences defined in a) and b) through the degeneracy of the genetic code.

8. An expression cassette comprising, under the genetic control of at least one regulatory nucleotide sequence, at least one nucleotide sequence as claimed in claim 6 [either of claims 6 and 7].

12. A PARP-deficient mammal or PARP-deficient eukaryotic cell, in which functional expression of at least one gene which codes for a PARP homolog as claimed in claim 1 [any of claims 1 to 4] is inhibited.

13. An in vitro detection method for PARP inhibitors, which comprises

a) incubating an unsupported or supported polyADP-ribosylatable target with a reaction mixture comprising
   - a1) a PARP homolog as claimed in claim 1 [any of claims 1 to 4],
   - a2) a PARP activator; and
   - a3) a PARP inhibitor or an analyte in which at least one PARP inhibitor is suspected;

b) carrying out the polyADP ribosylation reaction; and

c) determining the polyADP ribosylation of the target qualitatively or quantitatively.

15. A method as claimed in claim 13 [either of claims 13 and 14], wherein the polyADP-ribosylatable target is a histone protein.

16. A method as claimed in claim 13 [any of claims 13 to 15], wherein the PARP activator is activated DNA.

17. A method as claimed in claim 13 [any of claims 13 to 16], wherein the polyADP ribosylation reaction is started by adding NAD^+.

18. A method as claimed in claim 13 [any of claims 13 to 17], wherein the polyADP ribosylation of the supported target is determined using anti-poly(ADP-ribose) antibodies.

19. A method as claimed in claim 13 [any of claims 13 to 17], wherein the unsupported target is labeled with an acceptor fluorophore.

21. A method as claimed in claim 19 [either of claims 19 and 20], wherein the target is biotinylated histone, and the acceptor fluorophore is coupled thereto via avidin or streptavidin.

22. A method as claimed in claim 20 [either of claims 20 and 21], wherein the anti-poly(ADP-ribose) antibody carries a europium cryptate as donor fluorophore.

23. An in vitro screening method for binding partners for a PARP molecule, which comprises

a1) immobilizing at least one PARP homolog as claimed in claim 1 [any of claims 1 to 4] on a support;

b1) contacting the immobilized PARP homolog with an analyte in which at least one binding partner is suspected; and

c1) determining, where appropriate after an incubation period, analyte constituents bound to the immobilized PARP homolog;

or

a2) immobilizing on a support an analyte which comprises at least one possible binding partner for a PARP molecule;

b2) contacting the immobilized analyte with at least one PARP homolog as claimed in claim 1 [any of claims 1 to 4] for which a binding partner is sought; and

c2) examining the immobilized analyte, where appropriate after an incubation period, for binding of the PARP homolog.

24. A method for the qualitative or quantitative determination of nucleic acids encoding a PARP homolog as claimed in claim 1 [any of claims 1 to 4], which comprises

a) incubating a biological sample with a defined amount of an exogenous nucleic acid [as claimed in either of claims 6 and 7], hybridizing under stringent conditions, determining the hybridizing nucleic acids and, where appropriate, comparing with a standard; or

b) incubating a biological sample with a pair of oligonucleotide primers with specificity for a PARP homolog-encoding nucleic acid, amplifying the nucleic acid, determining the amplification product and, where appropriate, comparing with a standard.

25. A method for the qualitative or quantitative determination of a PARP homolog as claimed in claim 1 [any of claims 1 to 4], which comprises

a) incubating a biological sample with a binding partner specific for a

PARP homolog,

b) detecting the binding partner/PARP complex and, where appropriate,

c) comparing the result with a standard.

27. A method as claimed in claim 24 [any of claims 24 to 26] for diagnosing energy deficit-mediated illnesses.

28. A method for determining the efficacy of PARP effectors, which comprises

a) incubating a PARP homolog as claimed in claim 1 [any of claims 1 to 4] with an analyte which comprises an effector of a physiological or pathological PARP activity; removing the effector again where appropriate; and

b) determining the activity of the PARP homolog, where appropriate after adding substrates or cosubstrates.

29. A gene therapy composition, which comprises in a vehicle acceptable for gene therapy a nucleic acid construct which

a) comprises an antisense nucleic acid against a coding nucleic acid as claimed in claim 6 [either of claims 6 and 7]; or

b) a ribozyme against a nucleic acid as claimed in claim 6 [either of claims 6 and 7]; or

c) codes for a specific PARP inhibitor.

30. A pharmaceutical composition comprising, in a pharmaceutically acceptable vehicle, at least one PARP protein as claimed in claim 1 [any of claims 1 to 4], at least one PARP binding partner [as claimed in claim 5] or at least one coding nucleotide sequence [as claimed in claim 6 or 7].